## ESTIMATION OF DAILY OVIPOSITION RATES
IN REARED FEMALE *ANTHERAEA POLYPHEMUS* (SATURNIIDAE)

In rearing giant silkworm moths for research purposes, it is frequently important to use specimens having the same approximate age and physiological condition. Fundamental to obtaining such specimens is an understanding of oviposition patterns and the factors that may affect such patterns. We have studied oviposition in *Antheraea polyphemus* (Cramer) (Miller & Cooper, 1980, J. Lepid. Soc., 34:256–259) and determined that reared females live an average of six days after mating and deposit an average of 216 eggs. Peak oviposition is during the first three nights after mating. We have also determined (Miller, et al., 1982, Ann. Entomol. Soc. Amer., 75:107–108) that the number of mature eggs (NME) in reared females can be estimated from pupal weight (WT) by the linear regression equation: $NME = 2.22 + 45.9 \ WT$ ($r = 0.78$). The number of mature eggs at emergence is 74.0 percent of the total eggs (TE) and is related by the linear regression equation: $TE = 35.3 + 1.10 \ NME$ ($r = 0.96$). Studies have now been completed on two additional aspects of egg production in *A. polyphemus*: (1) the relationship between total eggs deposited and adult longevity and (2) the relationship between total eggs deposited and daily oviposition rates. These studies were undertaken because it was important to know whether females that lived longer, or contained larger numbers of eggs at emergence, deposited their eggs over a longer period of time and,

$$E_{d3} = 6.44 + 0.27 E_T$$

$$R = 0.94$$
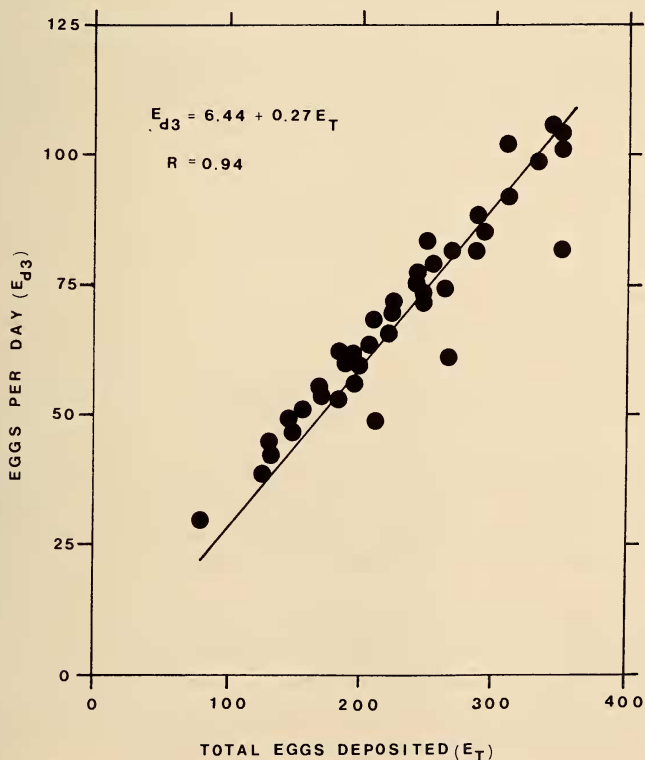
thus, for any particular group of eggs, resulted in wider variation in physiologic ages of the embryos and subsequent stages. Eggs were collected from 40 reared female *A. polyphemus* in paper bags as described by Miller & Cooper (1980). Daily oviposition rates represent the average eggs per night for the first three nights after mating. Total eggs represent the total eggs deposited during the lifespan.

Antheraea polyphemus females live from five to 10 days after mating (mean = 7.1; S.D. = 1.3). No significant correlation (r = 0.14) was found between the total number of eggs deposited and female longevity. However, daily oviposition rates were highly correlated (r = 0.94) with the total number of eggs deposited (Fig. 1). The total number of eggs deposited averaged 231.6 ± 67.7. The number of eggs deposited per night during the first three nights after mating averaged 68.5 ± 19.4. Thus, females that deposited greater total numbers of eggs during their lifespan did not live longer and deposit them over a longer period of time. They deposited their eggs at a greater rate during the first three nights after mating. The relationship between the three-day average oviposition (E_{d3}) and the total number of eggs deposited (E_t) is described by the linear regression equation: $E_{d3} = 6.44 + 0.27\ E_t$. Using the relationship we previously demonstrated (Miller, et al., 1982) between NME and WT, and between NME and TE, it is possible to estimate daily oviposition (E_{d3}) on the basis of pupal weight (WT) as follows:

$$E_{d3} = 6.44 + (0.27\ (22.4 + 45.9\ WT))$$

Aside from the value of this information in rearing giant silkworm moths for research purposes, the adaptive significance of these findings must also be noted. It appears that *A. polyphemus*, that does not feed as an adult, is able to efficiently use stored energy reserves obtained in the larval stage to deposit the majority of its eggs (74 percent) in a relatively short period of time (three days) independent of the total number of eggs deposited or the life-span of the moth.

THOMAS A. MILLER, *U.S. Army Medical Bioengineering R&D Laboratory, Fort Detrick, Maryland 21701 and William J. Cooper, Florida International University, Miami, Florida 33199* (the opinions contained herein are those of the authors and should not be construed as official or reflecting the views of the Department of the Army).

ADDITIONAL COMMENTS ON THE BUTTERFLIES OF THE AUSTIN, TEXAS, REGION

Recently, Durden (1982, J. Lepid. Soc. 36:1–17) presented and analyzed a list of 173 species of butterflies and skippers from a ten county region centered around Austin, Texas. Special attention was given to the 128 species found in Barton Creek canyon in the Balcones Fault Zone area of Austin. Below are comments on two species attributed to this author's collecting activities plus the report of an additional species to the Austin region.

In his list, Durden (op. cit.) credited an Austin specimen of *Siproeta* (*Victorina*) *stelenes biplagiata* (Fruhstorfer, 1907) to "R. Neck." Although stray individuals of this species undoubtedly occur in the Austin area on rare occasions, I have never collected *biplagiata* in Austin. The closest personal record of *biplagiata* to Austin is a female collected in Garner State Park, Uvalde County, Texas, on 14 October 1976. Collection was made in the canyon of the Frio River, approximately 210 kilometers from Austin. The specimen was extremely worn and exhibited very weak flight behavior. Both these